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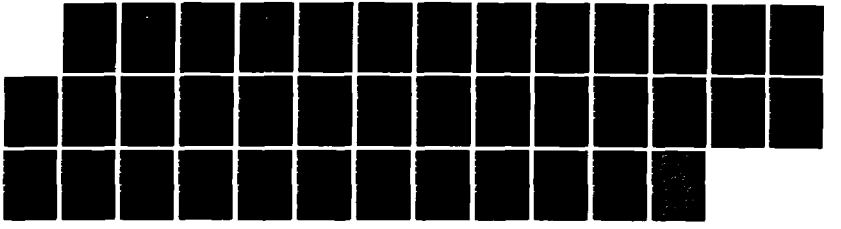

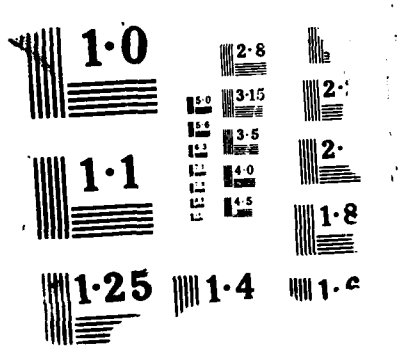
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AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT

PROJECT RIVET WORKFORCE AND THE AIR NATIONAL GUARD

MAJOR RONALD G. ELLIOTT 88-0860

"insights into tomorrow"

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Project Rivet Workforce, the Air Force initiative to reduce and consolidate the number of aircraft maintenance Air Force Specialty Codes (AFSCs) required to support a weapons system, will have significant impact on Air National Guard (ANG), maintenance personnel in addition to the Air Guard's maintenance organizational structure. As the results of Rivet Workforce (RWF) are implemented through restructured AFSCs, the ANG training requirements expands. This study looks at RWF and the implications of new training requirements within the ANG. The unique training environment of the traditional guardsmen is discussed and recommendations are made to tailor the training methodology to meet the needs of these traditional guardsmen.

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PREFACE

The basis for current manpower authorizations within the United States Air Force aircraft maintenance operations is rooted in the 1960s maintenance concept. Technological developments added new maintenance requirements beyond the scope of existing maintenance support capabilities. The concept of the 1960s was to specialize. New Air Force specialty career fields were created to handle the new maintenance requirements instead of expanding the maintenance scope of an existing Air Force specialty. The Air Force had 47 aircraft maintenance specialties in 1960. By 1985, this figure had grown to 134 Air Force specialties. The proliferation of specialties was accompanied by a corresponding growth in organizational positions and the development of a very complex maintenance organization.

The 1960s maintenance concept was in conflict with the budgetary realities of the 1980s. The Air Force was faced with supporting the same missions with a smaller budget. The Air Staff Project Rivet Workforce initiative evaluated the entire aircraft maintenance manpower and training spectrum as part of the effort to live within the budget.

Rivet Workforce will impose significant changes on the aircraft maintenance community to include maintenance standards, manpower requirements, personnel assignments and training requirements. The latter is the basis for this study as it applies to the Air National Guard.

The Air National Guard is a major player in the Total Force concept whose primary role is to train its members for their wartime roles so they are ready to augment the Air Force combat capability in any emergency. Training is one of the key elements of the Air National Guard. Major changes to the established training programs will influence the Air National Guard's ability to accomplish their primary role.

Rivet Workforce will change the existing training program requirements. The challenge for the Air National Guard is to develop a training methodology tailored to their unique training concept of operation.

This paper identifies this challenge, evaluates the available training options and makes recommendations to meet this challenge.

ABOUT THE AUTHOR

Major Ronald G. Elliott graduated from Iowa State University in 1966, and was commissioned through Officer's Training School in 1967. After completion of Aerospace Munitions Officer's Course, he was assigned to the 328th Munitions Maintenance Squadron, Richards-Gebaur AFB, Missouri. While assigned to the 328 MMS, Major Elliott was the officer in charge of the munitions maintenance, storage and handling section. He was next assigned to the 71st Fighter Interceptor Squadron, Malmstrom AFB, Montana, in 1968, where he served as the Munitions Services Officer. He was then assigned to the 314th Tactical Airlift Wing, Ching Chuang Kong Air Base, Taiwan, as the Wing Munitions Officer from October 1969 through February 1971. He subsequently became the Detachment Commander, 318th Fighter Interceptor Squadron, at Spokane International Airport, Washington, in 1971. He was the commander of an aircraft maintenance detachment supporting F-106 fighter interceptor aircraft on five minute alert status. Major Elliott separated from the Air Force in 1972 and joined the Maine Air National Guard where he worked full-time as the Munitions Maintenance Officer. He later became the Maine Air National Guard full-time Aircraft Maintenance Officer after graduating with Honors from Aircraft Maintenance Officer's Course in 1975. Major Elliott has served in several positions during the past eleven years with the Maine Air National Guard to include acting Chief of Maintenance, 1981-1982, while the Wing Deputy Commander for Maintenance attended Air War College. Major Elliott is currently the Maintenance Control Officer, 101st Air Refueling Wing, MeANG, Bangor, Maine. He is attending the Air Command and Staff College at Maxwell AFB, Alabama.

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EXECUTIVE SUMMARY

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REPORT NUMBER 88-0860

AUTHOR(S) MAJOR RONALD G. ELLIOTT, MeANG

TITLE PROJECT RIVET WORKFORCE AND THE AIR NATIONAL GUARD

I. Purpose: To examine the follow-on maintenance training problems encountered by the Air National Guard (ANG) with the introduction of restructured Air Force Specialty Codes (AFSCs) as a result of Project Rivet Workforce.

II. Problem: Project Rivet Workforce, the Air Force initiative to reduce/consolidate the number of aircraft maintenance AFSCs required to support a weapon system, will have significant impact on the ANG maintenance personnel and the way they are trained to meet their unit mission objectives. The crucial issue for ANG training programs during peacetime is limited availability of the guardsmen. The scope of this study is limited to the impact Rivet Workforce will have on training those personnel who currently hold duty AFSCs that are being functionally combined with others to form new AFSCs. Training for this group of personnel is usually done at unit level. Thus, the additional qualification training for the new AFSCs will present a training challenge to the Air National Guard. Therefore, the challenge for the ANG is to determine the training methodology best suited to implement Project Rivet Workforce requirements without jeopardizing the Air Guard's warfighting capability.

III. Data Collection: A combination of source materials was used to develop this study. Formal documents such as Air Force Doctrine and On-the-Job Training Program identifies what is supposed to be while the minutes of Rivet Workforce conferences provided insight into what will be after Rivet Workforce requirements are achieved. Telephone calls to key personnel provided substance to the study and clarified many points. Personnel contacted ranged from policy makers at the National Guard Bureau to "field" representatives which provided balanced ideas and opinions.

IV. Conclusions: Existing Field Training Detachments can provide some of the additional training but slots are limited. Due to guardsmen's limited availability, resident courses do not fill the bill. High technology computer-based training systems offer many advantages and could be adapted to Rivet Workforce training programs. Computer-based training programs are not centrally controlled with the technology being employed ad hoc by major commands. Computer systems are not always compatible between commands and the software is not interchangeable. Computer-based training software development is very time intensive. Extensive use of computer-based training systems at field units does not appear to be accomplished in the near term. On-the-Job Training Program has the potential to accomplish the additional training but is not ideally suited to handle the large number of people involved in the restructured AFSCs. Mobile training teams offer excellent training and are suited to meet the unique training requirements of the ANG that exists due to the limited availability of guardsmen. Contract Conversion Teams can duplicate the services of the Mobile Training Teams but at a price. It would take longer for the contractor teams to be formed and materials developed than the Mobile Training Teams. The contractor would be a good source of augmentee instructors.

V. Recommendations: Air Training Command should establish Mobile Training Teams to conduct the new training. This training forum optimizes the limited training days available to the ANG members while providing career specific training. Contract Conversion Training Teams should be established to assist in the new training. This would not replace the Mobile Training Teams but supplement them and expedite the training program. The ANG must develop a cadre of new AFSC qualified personnel to augment the Mobile Training Teams and to provide expertise in the unit On-the-Job Training Program. In addition, the ANG should authorize additional annual training days to the guardsmen entering the restructured AFSCs for both qualification and proficiency training.

Chapter One

PROJECT RIVET WORKFORCE

INTRODUCTION

> It has been determined [by the Air Staff] that the current Air Force aircraft maintenance system is too manpower intensive. It now requires 21 - 25 separate skills to support a modern weapon system, which equates to approximately 600 maintenance personnel being deployed per squadron of 24 F-15, F-16 or F-4 aircraft. . . . The number of skills required, together with the predictable manpower constraints the Air Force will face within the next five years, demands a review and changes to be made in the way we maintain aircraft. Project Rivet Workforce is the vehicle with which this review and changes are to be accomplished (23:1).

This December 1984 announcement was the initial introduction of Project Rivet Workforce to the Air National Guard unit level aircraft maintenance community. The Deputy Commanders of Maintenance received this new project with a great deal of apprehension and reserved final judgment on the project until program specifics were presented (28:---).

PURPOSE OF PROJECT RIVET WORKFORCE

The purpose of Project Rivet Workforce (hereafter referred to as Rivet Workforce) is to provide an institutional framework for orderly, proactive changes in aircraft maintenance, manpower, personnel and training policies (4:8). Rivet Workforce is aimed at providing alternative solutions to maintenance manpower and job performance problems.

STATEMENT OF THE PROBLEM

The major concern for the Air National Guard (ANG) involves qualification training for the Air Guardsmen currently in the career fields affected by Rivet Workforce. During peacetime, the average Air Guardsmen are authorized 39 days of military duty to

accomplish their various duties and responsibilities. The limited number of days restricts their availability to accomplish new training requirements. The basic problem, therefore, is to answer the question of how will the Air National Guard implement the new training and manpower requirements created as a result of Rivet Workforce without jeopardizing the Air Guard's warfighting capability. This question is the theme for this paper. The significance of this question for the Air National Guard aircraft maintenance community becomes apparent as the paper unfolds.

To gain insight into this problem, this chapter presents the background leading up to the Air Staff's decision to direct the Rivet Workforce initiative, the goal of Rivet Workforce and how the Rivet Workforce initiative intends to achieve the goal. The ensuing chapter looks at available training program options for training personnel in the new career field skills. Chapter three reviews the Air National Guard training perspective which differs markedly from that of the active Air Force. The author states his conclusions in the last chapter based on conversations, correspondence, publications and author's experience discussed in this paper. The recommendations made are based on the conclusions of this paper.

BACKGROUND

The Air Force initiative Reliability and Maintainability 2000 (RM 2000) was implemented to develop a new or improved maintenance, repair and design concept to improve weapon system reliability and maintainability. The program director was Lt Gen Leo Marquez, Deputy Chief of Staff for Logistics and Engineering. This program preceded Rivet Workforce and had a similar goal of reducing the number of personnel required to maintain aircraft without jeopardizing the Air Force's warfighting capability. The RM 2000 concept made the assumption that there was an inverse correlation between aircraft reliability and maintenance requirements. The RM 2000 initiative to improve aircraft reliability was successful. However, the expected decrease in maintenance manpower did not occur. General Marquez summarized RM 2000 results very well in his statement:

> I tried to quantify savings. For example, looking at the F-16, we figured that if you doubled the reliability and maintainability on fire control and propulsion systems, you could decrease spare parts requirements 50 percent and manpower requirements 40 percent. Tactical Air Command came back and said that they didn't see these savings. We went back and looked at it and what we found was, the process by which we compute manpower requirements is not structured to the needs of the aircraft. Instead, it is related to the

> [wartime and mobility] organizational structure. . . . Instead of concentrating on keeping aircraft flying, . . . the system has switched its emphasis to keeping an organizational chart properly filled in. This is what Rivet Workforce seeks to change (6:3).

General Marquez, through the Air Staff directed Rivet Workforce, was able to take a fresh look at the Air Force concept of aircraft maintenance, manpower allocations/utilizations, organizational structure, and technical training.

During the initial Rivet Workforce investigation of manpower authorizations and allocations, many factors were identified that influenced the key issue of aircraft maintenance manpower. The maintenance concepts of the 1960's were the basis for current Air Force Specialty Code (AFSC) classification and training systems which did not keep pace with technology changes of the late 1960's and 1970's. The concept of the 1960's was to specialize which created a skill proliferation syndrome. General Marquez comments on this matter:

> Back then the theory was that weapon systems were so complex that we could no longer train mechanics to take care of the whole airplane. This created segmentation and led to increased specialization. Another reason for the specialization back then was the question--how much training could we afford to give someone who was only going to be in the service for four years? If we trained them for three years and only got one year's work out of them, that's not a good investment. These two forces combined and resulted in the breaking up of more and more job structures. Then we added shredouts, further specializing everything. The net result was, 25 years later, we have about 134 maintenance career fields (6:3).

Skill proliferation can be appreciated after comparing the respective maintenance specialty figures from the 1960 Rivet Workforce database year to 1985. The total number of specialties and shreds for avionics, aircraft systems and aircraft crew chiefs was 47 in 1960. In just 25 years, maintenance specialty and shreds almost tripled to 134 for the same three maintenance areas (27:8). A by-product of expanded skills was a smaller population within some of the narrow aircraft systems unique skills and an associated low utilization rate for these skills which compounded the complexity of the manpower requirements (27:19).

The growth in manpower required by the highly specialized maintenance concept, limited by congressional budget constraints, was found to be another factor that influenced the manpower

picture. The congressionally authorized budget established finite limits on Air Force programs which translated to fewer dollars than needed to meet all planned programmed objectives (27:19).

Mobility was not a key factor in the 1960s manpower requirements. The current mobility contingency requirements created new organizational positions beyond the positions authorized for normal support of the aircraft. This further compounded the manpower allocation problem especially when the budget request was being funded at a reduced level (2:99).

The Air Staff, through Rivet Workforce, sought to identify the key generic factors that drove aircraft maintenance manpower requirements. This study found the various factors could be grouped into three distinct areas. Reliability and maintainability was using about 30% of the available manpower. This group was addressed by RM 2000. The second group supports the manpower requirements created by the relationship between the sortie rate, number of primary assigned aircraft, and scheduled maintenance requirements. This represents about 30% of the manpower resources to accomplish and is a firm figure. The last group representing 40% of the manpower resources is the organization and classification of the career fields. The Rivet Workforce study determined the latter had the most potential for improvement and concentrated the program accordingly (27:6).

All of these conditions compounds the aircraft maintenance manpower problem. The stage is now set to identify the stated goal of Rivet Workforce and the program steps to be initiated through Rivet Workforce to achieve the goal.

RIVET WORKFORCE GOAL

The goal of Rivet Workforce is to create a more flexible, mobile and survivable workforce which meets future employment concepts and maximizes training and utilization (27:17). This translates to an Air Force with fewer specialties, broader training and more flexibility. Simply stated, job skill and task training of maintenance specialties will broaden.

Rivet Workforce will achieve its goal through four specific program steps. The first step is to orient technicians within a particular type weapon system (i.e., F-16) by broadening their skills across different subsystems and maintenance functions for that type aircraft. For example, an avionics technician would acquire working knowledge of the aircraft's hydraulic systems for his/her particular type aircraft (6:3). The next step is to combine similar technology career fields and reduce the training redundancy of common subjects within similar career

fields. This may redefine the total manpower requirements especially for critical career fields in support of mobility taskings or deployments (22:---). An example of this is to combine the aircraft autopilot and instrumentation specialties into one specialty to maintain both systems. The third step is to focus training and career development policies on growth from airmen to master sergeant. The training mix would be altered and phased over a technician's career to maximize utility of training and provide greater growth potential to technicians as they rise in rank (25:10). The last step is to assure manpower standards meet wartime requirements.

RIVET WORKFORCE REVIEW PROCESS

The Air Staff, led by the Maintenance Policy Division (HQ USAF/LEYM), established a Rivet Workforce Task Force in November 1984 to conduct the investigations, analyze the results, draw conclusions, and make appropriate recommendations. An elaborate evaluation process was used by the task force to accomplish its job as outlined to them by the Air Staff. This process develops a mature proposal for review by major air commands and the Air Staff (25:9; 27:11).

Once the restructure proposals are validated and approved, each restructured career field will have a three year transition period. The task force established a time phased transition program for each restructured career field to minimize workforce turbulence and reduce impact of mission support during the entire transition period (21:---). To date, two career fields have been completed: integrated avionics with an implementation date of 30 April 1987 (24:1); and conventional avionics with an implementation date of 1 November 1987 (28:2). All Air Force specialties within the aircraft maintenance community will be reviewed. Specific restructure reviews are being accomplished in the following career fields: corrosion control and structural repair; metal processing and machinist; aircraft systems and aircraft maintenance; and sensor/photo (26:18). Other career fields programmed for review are munitions, maintenance analysis and aircraft scheduling.

The new series of combined aircraft related maintenance career fields will be renumbered to the 45XXX series Air Force Specialty Codes. An example of a newly created AFSC, 452X2, F-16 Avionic Systems Specialist has been published and includes new training and duty responsibilities (14:A24-25).

SUMMARY

As the Rivet Workforce process moves along, compromises and trade-offs on specific Air Force specialty restructures will be made. The Rivet Workforce task force will continue to review and integrate maintenance jobs, occupations, or AFSCs, where feasible, in light of current and foreseeable Air Force combat needs now and for the 21st century.

Chapter Two

TRAINING PROGRAM OPTIONS

INTRODUCTION

Rivet Workforce (RWF) is expected to " . . . give us an Air Force with a lot fewer specialties, much broader training and much more flexibility." (6:3) This highlights the desired goal of RWF as discussed in Chapter One. When fully implemented, RWF will have a significant impact on the current concept of aircraft maintenance. The key issue to this situation though is training for " . . . without adequate numbers of skilled personnel, we cannot maintain a credible armed force." (9:38) The significance of an effective training program becomes more important after similar technology Air Force specialties are combined by RWF. This chapter examines the current Air Force training concept, the Rivet Workforce approach to providing the necessary training for the new AFSCs, and some training innovations on the horizon that could enhance the overall training program.

THE AIR FORCE TRAINING AND EDUCATION PROCESS

Basic Aerospace Doctrine, AFM 1 - 1, gives direction to the Air Force training program and identifies its primary function as "training combat and support forces to ensure the conduct of prompt and sustained aerospace combat. . . . training is a . . . continuous process of applying education, skills, and experience to the goal of producing a credible, cohesive . . . team." (15:4-6) The combat and support forces of the United States Air Force consists of the Regular Air Force, the Air National Guard, and Air Force Reserves (15:4-1).

Air Force Doctrine recognizes that ". . . the most important element of a well-trained force is its people." (15:4-6) The human element then becomes a major factor in designing training programs to effectively use this valuable personnel resource. The training concept promoted by AFM 1 - 1 ties technical and operational training together to develop a well disciplined and skilled fighting force that is committed to a sense of mission and purpose.

> Our technical training and operational training are inseparable from professional military training, in the sense that the development of skills and proficiency without commitment produces a force with an absence of purpose. These two elements, education and training, enhance the competence of our personnel by broadening their perspectives, expanding their knowledge of war, and by preparing themselves to assume leadership positions of increasing scope and responsibility. Thus, education and training comprise a continuum that does not begin or end with formal programs. They are inseparable elements of a continuous process that inspires commitment, both individually and as a team, to the mission of the Air Force (15:4-6 - 4-7).

The current Air Force education and training programs are designed to achieve this AFM 1-1 precept. The RWF task force in conjunction with Air Training Command did a review of the current USAF training and education process for use in meeting the broader training objectives of RWF (26:1). The basic process remains valid under RWF but some changes have to be made to satisfy the broader objectives with the constraints of limited time, manpower and money (26:4). The following discussion of the RWF approach to integrated training and the changes needed to reach the RWF training objective will clarify this point.

RWF APPROACH TO INTEGRATE TRAINING

The RWF training approach builds upon the existing USAF training program. This approach employs the use of technical training centers (TTCs), Field Training Detachments (FTDs), On-the-Job Training (OJT) and Professional Military Education which are familiar training program elements. TTCs provide basic skill training for a specific AFSC. FTDs provide specific task, equipment and weapons system training. OJT provides personnel career area job knowledge and develop job qualifications required to perform in their specialty. Each element compliments the other to form a building block approach for airmen career development. The Specialty Training Standard ties each of these elements together by establishing what training will be accomplished by the TTCs, FTDs and unit level OJT programs (19:42).

Specialty Training Standard (STS)

The training program for each Air Force specialty is based on the STS for that military job. The STS is a combination job description and career development ladder. It lists the tasks to be performed and standards of task performance for each skill level for that specialty. It identifies which tasks are to be

taught during institutional training and those tasks which are to be taught during OJT (19:42; 29:---). The STS is a significant document in the AFSC training arena.

STS Development and Revision

Each technical training center is assigned as office of primary record for specific AFSCs. The TTC is responsible for developing the STSs for assigned specialties with revisions scheduled every two to five years. Each revision is based on comments from major commands and on the latest Occupational Survey Report for that specialty provided by the Air Force's Occupational Measurement Center. The revised STS becomes the basis for rebuilding or upgrading the specialty's training program (26:3; 29:---).

The Occupational Survey Report (OSR)

The AF Occupational Measurement Center conducts about 50 OSRs annually to meet the TTC specialty revision schedule. The OSR is a systematic sampling of large populations of airmen using questionnaires designed for each Air Force specialty. Results are used to help define and describe the basis for STS tasks and knowledge (29:---).

Due to RWF restructuring of AFSCs, new STSs had to be developed to provide the new AFSCs training syllabi. The RWF task force members developed new STSs out of then normal channels to meet the RWF timetable for each AFSC being restructured (26:ATCH 5). Until the new STSs are developed, the training for restructured AFSCs cannot be accomplished. Progress is being made but it is a slow deliberate process which has produced only two restructured AFSCs since November 1984 as reported in Chapter One.

Institutional Training

Institutional training is categorized into training provided by a Technical Training Center or Field Training Detachment.

Technical Training Center

Logistics personnel in aircraft maintenance usually receive their initial technical skills training at the appropriate TTC, Air Training Command (ATC). The students are taught fundamentals and theory for their basic career field which prepares them for detailed instructions given in the second phase of the instructional sequence conducted by a Field Training Detachment. The FTD plays a key role in the USAF technical training system where the aircraft maintenance personnel learn their entry level AFSC technical skills.

Field Training Detachment

The FTD is an ATC detachment that provides field training at a designated location (16:1). This training includes ". . . job-oriented systems, associate, and aircrew familiarization training for projected training requirements and conversions." (16:3) The basic mission of the FTD is to provide technical skill training on weapon systems and associated support equipment. Training is accomplished on one or more systems using the flight line, maintenance shops and classrooms for academic settings to achieve the desired standards of behavior (20:6-1).

An airman graduating from a Phase II FTD course has attained basic knowledge within his/her Air Force specialty but lacks the experience and proficiency to perform most tasks without supervision. Completion of Phase II training marks the beginning of a formal on-the-job training program.

The following definitions of key FTD terms are germane to the understanding of the FTD program.

> Field Training - System, associate, or aircrew familiarization training conducted at an operational location by an FTD, a field training team, or a mobile training team.
>
> System Training - Job-oriented maintenance training on equipment associated with an Air Force specialty.
>
> Associate Training - Training which provides pre-requisite or general support knowledge training.
>
> Field Training Team - A team of ATC instructors formed from various FTDs and specifically designated to support ANG and AFRES conversion training requirements.
>
> Mobile Training Team - A team formed by ATC to provide training onsite at operational unit locations. (16:1)

On-the-Job Training

On-the-job training is a formal program that ". . . provides training for enlisted personnel to attain career area and job knowledge and develop job qualifications required to perform duty in their specialty." (19:5) OJT is normally accomplished at the operational unit level and consists of a knowledge track and a position qualification track which comprise the dual channel OJT Program. The career knowledge and task knowledge is gained through correspondence course (Career Development Course), technical references and directives listed in the applicable STS. Position qualification training involves hands-on training that

is required to qualify an airman in the applicable job position (19:5). The OJT Program actually contains three separate but interrelated portions which are upgrade training, qualification training, and retraining. Upgrade training increases skills and abilities leading to the award of a higher AFSC skill level. Qualification training is hands-on task performance training designed to qualify an airman in a specific duty position (19:6). The retraining program is used to balance the number of personnel within Air Force specialties by grades and year groups. The retraining program identifies Air Force specialty imbalances and reassigns these personnel to the new specialties who then enter the upgrade training process (19:6).

The dual channel OJT Program is a composite of both qualifications training and knowledge training. Knowledge training is comprised of both task and career knowledge. The STS provides direction and depth of training for each skill level. This training must be accomplished within a reasonable time frame (usually 12 months) along with classification policy requisites such as PME before an airman's career advancement occurs (19:5).

Career Development Course (CDC)

The CDC program provides necessary information to satisfy the dual channel OJT career knowledge track. CDCs provide basic principles, techniques and procedures that are common to an AFSC (19:34). The CDC is a correspondence program administered by the USAF Extension Course Institute. Completion of an AFSC CDC is mandatory for upgrade to the next-higher skill level.

Professional Military Education (PME)

The PME Program will not be discussed in this paper. It is mentioned because PME plays an integral role in the training doctrine described in AFM 1-1. This translates into a direct relationship between PME and career progression. In essence, the corresponding level of PME must be completed before an individual is eligible for promotion to the next military grade provided all other promotion criteria are met (19:5).

NEW RWF TRAINING TERMS

New ATC training terms have added new dimensions to the USAF training program as a result of RWF. These terms, transition and crossover training, relate to AFSC skill level training. Crossover training is that training required by technical school graduates of the new AFSC to learn remaining duties of their restructured AFSC (26:4). Transition training is that training required by people currently in the field to learn additional duties for their new AFSC (26:4).

Crossover and transition training could be accomplished by FTD, unit OJT or a combination of both. The jury is still out on where this training will be accomplished and who will administer it (26:3). Two examples from the restructured Avionics AFSCs show that the RWF planners are waffling on this issue. The qualifications statement for the F-16 Avionics Systems AFSC 452X2 makes completion of the applicable suffix FTD course mandatory for upgrade to the five level (14:A24-25). On the other hand, new Avionics AFSCs 455X1, 455X2, and 455X3 do not require an FTD course with OJT/upgrade training left with local unit (21:---). The requirement for mandatory FTD courses for upgrade training is new after RWF. The Deputy Commander for Maintenance previously decided on a case-by-case basis who would attend the FTD resident course for upgrade training (28:---).

In addition to using the established training system, RWF is looking at innovative and creative methods that are expedient, efficient, and less expensive because training is manpower and time intensive. Among these are high technology training devices such as interactive computer systems, the use of field mobile training teams, and contract conversion training teams. Each has its advantages and disadvantages.

INNOVATIVE AND CREATIVE TRAINING METHODS

Contract Conversion Training Teams

The concept of contractor developed and maintained training programs is not new. The Air National Guard now contracts with American Airlines to provide academic and simulator instruction to its KC-135E model aircraft pilots (32:---). The US Navy's contracting success with the F/A-18 training program was quickly followed by the Marine Corps' AV-8B training systems approach (17:81). These two examples are not directly related to aircraft maintenance but are mentioned to illustrate the sophistication of the civilian community training programs.

There are many advantages to contract conversion training teams. Initial conversion creates a training demand that exceeds the short term capabilities of current in-house USAF training programs (26:5). A contractor team could fill the void. Contracting for services from civilian firms that specialize in training development results in programs that combine the best expertise of both military and civilian professionals (17:143). The contractor would have the latest equipment and teaching methods. In addition, the contract training avoids the drain of skilled aircraft technicians from the flight line to the classroom as instructors (26:11). Contract training teams could offer a more timely training program by providing the training services at the time and place best suited to the user needs.

The monetary costs may be a disadvantage depending on the contract, length of training, etc. However, these costs would be partially offset by reduced TDY expenses incurred by either the FTD instructors or the students depending on the training site and if the contract team is mobile.

Mobile Training Teams

Mobile training teams provide an excellent training resource in the field to provide hands-on expert instruction. There are many advantages to this option. It reduces unit level manpower resources because the training is done on site eliminating travel days for students. In addition, TDY expenses would be reduced (26:11). Training on site would provide a conducive atmosphere for the student with training demonstrations conducted on the actual equipment used by the unit. This option also benefits from having a class made up of students who are acquainted and not distracted by strangers.

On the negative side, FTD instructor manning levels do not allow for unlimited mobile training team assignments. The TDY expenses of the instructors would cancel some of the savings realized by the field units.

Manning constraints for FTD instructors could be offset by augmenting the instructor force with qualified personnel from field units or through the use of a contract training team. The use of field unit personnel as augmentees would create shortages within the affected units while their members are performing augmentee duties. This could be an acceptable short term problem if it would expedite the transition and crossover training process.

High Technology Training Devices

High technology training devices are common place in the civilian community. The application of computer technology in the military training environment is fairly recent in comparison. Computer-based training (CBT) is now being employed by the Air Force with some degree of success. The high technology of major interest is the computer assisted instruction (CAI) Interactive Video Disk (IVD) Training System. The Air Force along with other Department of Defense services has developed CBT systems and has shown them to be effective in reducing overall training costs (10:3). Studies of CBT systems have shown that computers can increase training effectiveness, reduce total training time and lighten administrative workloads (11:3-6). As a result of these potential savings, the Air Force made a commitment to use computers in training and now has a vast array of systems in use. A full discussion of CBT is beyond the scope of this paper. However, there are key points to be made about CBT systems.

Computer based-training systems can produce quality, cost effective training when properly designed and used but this utility of the computer is diminished by the way computers are controlled in the United States Air Force. The USAF is not well organized to handle CBT development (26:6). Various components of the Air Force have developed their own CBT systems but are unable to exchange course software because of different formatting techniques, different computer systems and command specific configuration controls (12:8). This detracts from the efficiency of USAF CBT systems by having many Air Force components developing programs that are useful to many agencies but cannot be used due to incompatibility of the systems. The cost of developing a program is not readily seen by the typical military member. ATC at Keesler AFB is currently expending about 300 man-hours for a one hour IVD lesson (26:7).

High technology training is a valuable asset to the training community that is expensive and not USAF centrally controlled. A computer technology base capable of making a three axis, fully interactive video computer controlled flight simulator is capable of developing a comparatively simple IVD program for aircraft maintenance training application. But for now, the Air Force has a very time consuming system to develop IVD programs.

SUMMARY

The Air Force's approach to training requires a long period of institutional, and technical training followed by formal OJT for the remainder of the airman's career. The STS is the foundation for all specialty training in the Air Force. OJT is a structured program leading to skill upgrading. FTDs provide valuable technical training.

The author believes that Rivet Workforce training requirements can be satisfied by the current training program with a few modifications. Many innovative ideas could be used during the conversion training phase of RWF. Those discussed were contract conversion training teams, mobile training teams and high technology computer-base training systems.

Chapter Three

AIR NATIONAL GUARD TRAINING PERSPECTIVE

INTRODUCTION

The role of the Air National Guard changed significantly when Secretary of Defense Schlesinger implemented the Total Force Concept into policy by declaring that "Guard and Reserve Forces will be used as initial and primary augmentation of the Active Forces." (1:36) The results of this 1973 policy were best described by Major General Conaway, Director, Air National Guard. "Our Air National Guard today is an equal partner in the total Air Force. We have an all volunteer end strength of 112,000, representing approximately 20 percent of the total Air Force's strength and just under 30 percent of its combat units." (7:85) The Guard forces now have to be more than just available. They have to be ready for combat on the same timetables as the active Air Force component units. The Air Guard is now a force in being, not just a force in reserve. Therefore, the keystone is adequate numbers of skilled personnel trained and equipped to meet the Air Guard's mission. The role of the Air National Guard (ANG) emphasizes this fact.

> Air National Guard and Air Force Reserve units and individuals, as part of the total US Air Force capability, are the initial and primary source of augmentation forces in any emergency that requires rapid and substantial expansion of US Air Force combat capability. Under this policy, and because many of these units represent the US Air Force initial capability, it is essential that these forces be staffed, trained, and equipped with the resources required to meet their wartime tasking (18:1).

IMPORTANCE OF ANG TRAINING

Readiness upon mobilization is an area of constant concern within ANG operational units. The Air National Guard is the fifth largest air force in the world with over 1,700 aircraft and 112,000 personnel (8:104). These personnel and aircraft provide 73 percent of air defense interceptor forces, 57 percent

of tactical reconnaissance forces, 40 percent of tactical air support, 35 percent of tactical airlift, 25 percent of tactical fighters, 17 percent of the air refueling forces, and 13 percent of the rescue and recovery forces of the total Air Force capabilities (5:160). This is a potent part of the nation's war-fighting capability that is manned by citizen soldiers who in years past were referred to as "weekend warriors." The Total Force Policy brought modern aircraft and equipment to the ANG along with expanded missions and roles. Today, the term "weekend warrior" or part-time soldier is a misnomer because on any given day ANG forces participate with active duty forces in Air Force missions such as air refueling, air defense, tactical airlift, and support of drug interdiction efforts (5:104).

Increased emphasis on the Total Force Policy places the ANG in expanded roles requiring more sophisticated training for the ANG members to support the modern weapon systems. Since the Air National Guard represents 20 percent of the total Air Force strength, the quality of aircraft maintenance related training has a direct effect on the nation's war-fighting capabilities. Training of ANG aircraft maintenance personnel is vitally important to the success of the ANG and the nation. Thus, training is a major challenge within the ANG especially when the Air National Guard training process is a challenge in itself.

ANG TRAINING ENVIRONMENT

The training environment of the ANG differs markedly from that of the active Air Force. The primary training difficulties caused by the ANG training environment are related to the limitations of personnel availability. A guardsman's initial enlistment and basic technical training parallels that of the active Air Force contemporary. This is also true when the guardsman attends a follow-on technical FTD course. Things change though when the guardsman returns to his/her home unit.

In general, ANG members are authorized to perform 39 days of military duty each fiscal year. Twenty-four of these days are allocated for Inactive Duty Training (IDT) and 15 days allocated to active duty Annual Training (AT). This is the standard authorization for each ANG member but these days are dependent on the budget. A cut in budget will impact the number of training days available limiting membership training (31:---). Some jobs are unique (i.e., Avionics Maintenance) and members entering these career fields are authorized additional AT days for initial proficiency training termed "seasoning."

Additional periods of training may be authorized on special occasions when the need is demonstrated. Personnel entering a retraining program are an example of this situation.

The operational ANG units must develop their training programs based on one individual being available for the allotted 39 days per year. Thirty-nine days for the guardsman to complete his/her yearly training requirements does not leave any room for major adjustments to the schedule. In addition to training, the guardsman must also complete his/her other military duties and activities during the same 39 allotted days. It is important that the maintenance supervisors develop and maintain a comprehensive training schedule to complete all required actions.

ANG TRAINING METHODOLOGY

The limitation of personnel availability creates a difficult challenge for the Air Guard units in how to best utilize these limited personnel resources in supporting the very demanding ANG mission. The mission is in three parts: support wartime requirements; perform peacetime missions that are compatible with Air National Guard training requirements and the maintenance of mobilization readiness; and conduct training in support of the Total Force capabilities (18:2). Lots of training requirements are suggested in these phrases which provides purpose for the ANG training program.

Current training methodology to acquire an AFSC for the ANG aircraft maintenance personnel essentially uses the Air Force training model (30:---) as described in Chapter Two. The program approach uses technical training centers and FTDs for initial skills qualification training followed by formal, structured OJT for the remainder of the airman's career using the AFSCs STS or Job Qualification Standards (if published) as the career progression training guide. The OJT program is under the direct supervision and control of the airman's unit of assignment. When effectively managed, this program will provide adequate numbers of skilled personnel trained to meet the Air Guard's mission (9:38). The impact of RWF may change this assessment.

How aircraft maintenance personnel learn their specific career specialty skills is important. Where these personnel receive this training is also important. As previously stated, the initial training is conducted by technical training centers and FTDs where all the latest mock-ups, training aids and materials are located. The OJT is an autonomous unit function taught under different circumstances.

The Air National Guard has 91 flying units with 11 located on Air Force Bases (3:78-82). The majority of ANG flying units are assigned to municipal or other airfields with no direct access to active Air Force facilities or equipment. Some of the collocated units have different type aircraft than their host bases such as the Hawaii ANG with F-4C aircraft at Hickam AFB.

This emphasizes the fact that ANG units conduct autonomous training programs at locations that primarily are without active duty Air Force presence. The ANG training scenario for aircraft maintenance personnel is based upon two complementary programs. The first involves inactive duty training and the second involves active duty annual training.

Inactive duty training is usually performed during Unit Training Assembly (UTA) periods scheduled for specific weekends on a monthly basis (3:10-11). These training periods are used to complete OJT, administrative requirements, ancillary training, medical examinations, mobility exercises and wartime exercises. In addition to these items, the personnel also are required to do their primary job of supporting the unit's flying mission. The UTA weekends are essential training days for the guardsmen. These weekends are demanding and complicated.

Active duty annual training on the other hand provides an opportunity for unit members to participate in deployments to Europe, Central America, the Middle East, and the Pacific. In addition, they participate in joint exercises such as Global Shield, Red Flag, and Team Spirit. This training scenario places the guardsman primarily in an OJT environment to develop hands-on proficiency training and experience.

Both training scenarios compliment each other in preparing the aircraft mechanics and specialists for their ANG mission of fighting the war if called upon and to win that war. "There is absolutely nothing, except combat, that provides a valid test of the mettle, training, and cohesiveness of a unit like tasking it to mobilize at its home base, deploy to a remote location, and then perform the tasks it would be expected to accomplish when mobilized." (9:38) The ANG trains to win this challenge.

ANG WORKFORCE COMPOSITION

Of the 112,000 ANG personnel, about 29,000 are full time support personnel. This core group is comprised of civil service technicians and active duty Guard and Reserve (AGR) members who provide a nucleus of skilled personnel to provide continuity of mission and continued training for the guardsman. The remaining 83,000 guardsmen are the "part-timers" providing the mobilization base for the ANG (3:75, 116; 18:2).

National Guard Technician/AGR

Public Law 90-486, cited as the National Guard Technician Act of 1968, was passed on August 13, 1968 to clarify the status of the National Guard technicians (4:755). This act recognized the National Guard technicians as federal employees in "excepted"

civil service status. "Excepted" means they are excepted from competitive hiring procedures because of their unique military nature (4:755 - 760).

> The concept of the technician program is that technicians will be a full-time cadre that will basically perform the same type of job in a technician status that they perform militarily. Thus, in case of mobilization they would carry their skills and training with them. By regulation, all military technicians must be militarily assigned to the same military unit by which employed, in a military specialty which is compatible with his/her full-time job and maintain the proper military rank established for the full-time position (3:74).

The maintenance technicians constitute the heart of the Air Guard's capability to maintain combat readiness, provide OJT to the "part-timers" and insure a rapid mobilization capability. Technicians provide program continuity and unit cohesion (7:86).

ANG Guardsmen

Seventy-five percent of the ANG maintenance personnel are citizen soldiers who have civilian careers. These guardsmen have full-time civilian jobs during the week and perform ANG military duties on UTA weekends and during their 15 days of annual training. As a result, they have a distinct challenge of balancing their civilian occupation with their ANG careers.

Training part-time guardsmen to the fully qualified level in their Air Force specialty is a principle objective of the ANG. There are many stumbling blocks preventing this from being easily accomplished. The limited authorized military duty days for the guardsmen detracts from an effective comprehensive training program. Thirty-nine days annually may be sufficient for OJT requirements but all the other duties and responsibilies incurred by the guardsmen must be completed in those same 39 days. This creates a time compressed maintenance training environment.

To further compound this issue, the guardsmen must deal with the demands of their civilian career, the needs of family and personal goals. Family needs often take a back seat because the guardsmen take time away from their family to participate with the ANG on weekends and annual training periods. Conflicts may develop with employers when the guardsmen progresses to higher levels of responsibility within their civilian career. This is especially true when several guardsmen are employed by the same firm. Self-employed guardsmen have a unique problem in balancing their business objectives with their military career. It takes a highly motivated individual to balance the citizen soldier life.

IMPACT OF TRAINING PROGRAM CHANGES

The forthcoming RWF changes in AFSC qualification training will have varying degrees of impact on the ANG. The full-time support personnel will have a relatively easy time of transition training (22:1). The stumbling block is the group of guardsmen who possess an AFSC that has been restructured and now requires transition training to learn the additional duties of their new Air Force specialty.

The guardsmen in this category have already completed their basic military and initial skills training programs. They will be established in their civilian careers and the majority of them will be married with a family. Their availability to attend the formalized transition training at an FTD above and beyond the normal 39 training days annually is questionable. A civilian career places big demands on the guardsmen which limits their availability for peace time military duty.

The mission of an operational unit places specific demands on the aircraft maintenance community. Deployments, exercises and special events such as an alert program dictates the number of personnel required to support the mission throughout the year. The full-time support personnel workforce is insufficient to meet all of the mission support requirements. The guardsmen must use part of their available military days to support the flying operation. This further complicates the training problem.

SUMMARY

The Air National Guard has gone from what has been disparagingly referred to as a weekend flying club, flying outdated aircraft, to being treated as an important member of the Air Force team. Under the Total Force Policy, the ANG has become the initial and primary augmenting force for the Air Force. The ANG is now a combat-ready force with modern equipment and significant missions.

Realignment of Air Force specialty careers in the aircraft maintenance field have significantly increased the technical training requirements for those personnel affected by the realignment actions of Rivet Workforce. Current training requirements within the ANG are very demanding. Rivet Workforce creates a new training challenge which the ANG could accomplish with proper planning and with the right tailored training program.

Chapter Four

THE ANG TRAINING CHALLENGE - RWF

INTRODUCTION

The training concept utilized to implement Rivet Workforce is a key issue. These concepts were discussed in Chapter Two with a discussion of the ANG training perspective in Chapter Three. This chapter contains recommendations for tailoring a training program to ANG requirements based upon the facts and observations from the first three chapters of this paper.

CONCLUSIONS

The high technology of computer-based training could be used at the unit level for new skills upgrade training required by RWF. Computer-based training is expensive requiring a lot of programmer time to develop the software and then keep it current. Also, the proliferation of new computer technology complicates the CBT issue. CBT is not necessarily the best technology for teaching all subjects but certain training enviroments are ideal for CBT. Computer instruction is particularly effective in providing immediate feedback. Conclusive studies of CBT systems show that computers can increase training effectiveness, reduce total training time and lighten administrative workloads (11:3-6). The Air Force must establish a single point of contact with the expertise and equipment to aid current and future CBT users develop effective exportable programs that are compatible with major command computer-based training systems.

Existing FTDs can pick up some of the additional crossover training requirements but slots are limited. This will not provide the level of training coverage required by the field units to qualify their personnel in the new AFSCs. This problem becomes larger when additional restructured AFSCs are brought on line. To satisfy the training requirements, mobile training teams must be formed to provide training to the field units. This is an important factor to the success of RWF. If unit personnel do not receive expert crossover and transition training on a timely basis, the system will fail.

Mobile training teams deployed to field unit locations offer significant advantages as previously stated in Chapter Two. This is the type of training situation that is ideally suited to an ANG unit training environment. The guardsmen's limited training days are used more effectively when they attend the mobile training team course in residence at their home unit for two reasons. First, the guardsmen's available training days are used more effectively. TDY travel days come out of the available training days they are allotted. Thus, more total days are available for the guardsmen to learn their new skills. The second reason is more important. Mobile training scheduled for home station creates a formal "schoolhouse" environment where the students are removed from their normal duties in support of the unit mission. The guardsmen become full-time students who can dedicate their time exclusively to learning their new skills.

This training scenario provides the best opportunity for ANG personnel to acquire the necessary skills of the new AFSC through the optimum use of personnel resources. The trade-off for this program is Air Training Command realigning their available instructors to form mobile training teams. This may not be possible due to other existing on-going training programs and their limited number of instructors. Augmentation of the instructor force from active duty, Air Guard or civilian contractor would solve this problem. This is a viable program that must be developed to fully implement the new RWF training requirements within the ANG in a timely fashion.

Contract conversion training teams from the private sector also have many advantages that are discussed in Chapter Two. The primary advantages are structuring a training program to meet the time lines established by the user and employing the latest in educational technology through the contracting agency. The contract training teams could be mobile which would meet the ANG requirements of on-site conversion training. The costs of this type training program are unknown. Specifics about available contracting programs and dollar amounts were omitted because it was beyond the scope of this paper. As cited previously, under certain conditions, contract training teams are cost effective.

Contractor training has many advantages to recommend it for primary consideration but the Air Force contracting process to obtain these services is very complicated and time consuming. Writing the specifications for the contract alone would place this option beyond RWF short term goals especially with two restructured specialties already in use. The long term benefits for this option would achieve RWF objectives. With so many successes in past contractor training programs, it deserves further detailed investigation.

The OJT program is also a viable option that provides valuable skills knowledge and qualifications training. However, there are two major problems with initially incorporating crossover and transition training into the unit level OJT program. The first problem is the OJT program is already overworked and is saturated at the unit level. The second problem is the lack of qualified unit personnel in the new AFSC duties and responsibilities to be assigned as OJT trainers. The full-time support personnel could be trained at an FTD and then assigned duties as OJT trainers to solve the latter problem. Aircraft personnel who perform OJT instructor duties are removed from their direct mission support roles. An optimum balance must be reached between training and mission support at unit level. Training holds the key to success in developing the specialists and mechanics needed to support the aircraft. This does not mean the mission can be put on hold status until these personnel are trained. It does point out that unit level OJT places constraints on the ability of a unit to fix and fly aircraft. Crossover and transition training can be accomplished through the unit OJT program. It will increase the OJT workload. Of the options considered, unit OJT program is the least desirable method to accomplish crossover and transition training.

Regardless of the training program used, consideration must be given to the guardsmen and the limited military days they have available to accomplish their duties and responsibilities. An individual can do only so many things in a given period of time. The workload for the restructured AFSCs is greater than the workload of any one of the old AFSCs. A significant increase in workload to be done in the same number of days could be very counterproductive. To compensate for this, guardsmen affected by restructured AFSCs should be authorized ten additional days of annual training per year for as long as they are in the new career field. Ten additional days is an arbitrary figure based upon RWF training requirements with no track record. These days would provide an opportunity for the guardsmen to learn the duties of their new AFSCs and to develop some degree of proficiency in their career fields. Job satisfaction plays a key role in the guardsmen staying with the ANG. To achieve job satisfaction, the guardsmen must be properly trained and mission oriented. They also want to participate and make significant contributions in keeping the aircraft flying. Increased training days would give these people a chance to enjoy job satisfaction.

The ANG full-time support personnel provide program continuity and support the unit flying mission. They form a versatile cadre of personnel with a big job of training guardsmen while maintaining a high state of readiness. The technicians are in a career position that would allow them to attend FTD residence courses to qualify for the new AFSCs. They could then be used for unit level OJT or augment the mobile training team.

Well trained personnel who know the unit's mission and commander's intent are highly motivated individuals who are top performers. A credible training program must be on line prior to Rivet Workforce restructured AFSC implementation. Clear guidelines must be established to accommodate crossover and transition training while the unit continues their normal mission support to fly and fight whenever and wherever required.

RECOMMENDATIONS

The Air Training Command should establish Mobile Training Teams to conduct crossover and transition training at the unit's base of operation for the Air National Guard. This training forum optimizes the limited training days available to the ANG members while providing career specific hands-on qualification training.

Contract Conversion Training Teams should be established to conduct crossover and transition training at the unit's base of operation in the event Mobile Training Teams are not available. The contractor team could augment the mobile training team to expedite the training process.

The ANG should develop a cadre of new AFSC qualified personnel from field units to augment the Air Training Command's mobile training teams. This joint effort would enhance the quality of training and reconfirm the ANG commitment to training.

The ANG full-time support personnel should receive priority on FTD school slots for new AFSC crossover and transition training. This core group could then conduct unit OJT and provide technical guidance for the new AFSCs that may not be taught by the mobile training team.

The ANG should authorize additional annual training days to the guardsmen entering the restructured AFSCs for both qualification and proficiency training.

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